

WHAT IS CLAIMED IS:

1. A congestion-responsive VoIP system, comprising:  
a plurality of terminals, and an IP network which  
connects said plurality of terminals, wherein

said IP network comprises a repeater,

5 said repeater comprises a congestion value adding  
part for, based on the amount of data in speech data on  
said IP network, adding congestion data indicative of  
congestion conditions to speech packets that are  
transmitted to said terminals,

10 said terminals comprise a call set-up part for  
setting up a call and a detecting part for receiving  
said speech packets and detecting a congestion condition  
based on said congestion data in said speech packets,  
and

15 said call set-up part determines selectively a  
coding method for use in speech communications with the  
other terminal responsive to said congestion condition.

2. The congestion-responsive VoIP system as set  
forth in claim 1, wherein

said terminals further comprise a packet  
transmitting part, and

5 said coding method is notified to the other  
terminal via said packet transmitting part.

3. The congestion-responsive VoIP system as set forth in claim 1, wherein  
congestion data to be added to each speech packet is either a "1" or a "0."

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4. The congestion-responsive VoIP system as set forth in claim 3, wherein,  
said detecting part outputs the severity of congestion for said congestion condition to said call set-up part, based on the ratio of said speech packets to which the "1" has been added as said congestion data to the total.

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5. The congestion-responsive VoIP system as set forth in claim 3, wherein,  
said detecting part outputs the severity of congestion for said congestion condition to said call set-up part, based on the ratio of said speech packets to which the "1" has been added as said congestion data to the total, and

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said call set-up part determines on a lower-speed coding method if said severity of congestion is higher.

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6. The congestion-responsive VoIP system as set forth in claim 1, wherein  
said repeater further comprises a congestion predicting part, and

5           said congestion predicting part determines the ratio of speech packets to which said congestion data will be added according to the transmission condition for said speech packets.

7.       The congestion-responsive VoIP system as set forth in claim 6, wherein

          said repeater further comprises a buffer monitoring part, and

5           said buffer monitoring part notifies said congestion predicting part of the transmission condition, based on the amount of data contained in said speech data.

8.       A congestion avoidance method for VoIP system, comprising the steps of:

          detecting the amount of data contained in speech data over the network using a repeater,

5           based on said amount of data, adding congestion data indicative of a congestion condition to speech packets to be transmitted from said repeater to a terminal, and

10          receiving said speech packets at said terminal, detecting a congestion condition based on congestion data contained in said speech packets, and determining selectively a coding method to be used for speech communications with the other terminal, based on the

congestion condition.

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9. The congestion avoidance method for VoIP system as set forth in claim 8, including  
step of setting a "1" or a "0" as said congestion data.

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10. The congestion-responsive VoIP system as set forth in claim 9, including  
at said terminal, step of detecting the severity of congestion for a congestion condition based on the ratio of said speech packets to which "1" has been added as said congestion data to the total, and determining on a lower-speed coding method if said severity of congestion is higher.

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11. The congestion avoidance method for VoIP system as set forth in claim 9, including  
step of changing the ratio between said congestion data "1" and "0" to add to said speech packets over said network according to said amount of data.

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12. The congestion avoidance method for VoIP system as set forth in claim 9, including  
step of changing the ratio between said congestion data "1" and "0" to add to said speech

5 packets over said network according to said amount of data, and

step of determining selectively a coding method based on the ratio of "1" and "0."

13. A terminal for a congestion-responsive VoIP system formed with a plurality of terminals and an IP network having a repeater for connecting said plurality of terminals, comprising:

5 a call set-up part for setting up a call, and

a detecting part for receiving said speech packets to which congestion data indicative of a congestion condition based on the amount of data in speech data over said IP network has been added and  
10 detecting the congestion condition based on said congestion data in said speech packets, wherein

said call set-up part determines selectively a coding method for use in speech communications with the other terminal responsive to said congestion condition.

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14. The terminal for the congestion-responsive VoIP system as set forth in claim 13, further comprising

a packet transmitting part, comprising

notifying said coding method to the other

5 terminal via said packet transmitting part.

15. The terminal for the congestion-responsive VoIP

system as set forth in claim 13, wherein

congestion data to be added to each speech packet is either a "1" or a "0," and

5           said detecting part outputs the severity of congestion for said congestion condition to said call set-up part, based on the ratio of said speech packets to which the "1" has been added as said congestion data to the total.

10           16.     The terminal for the congestion-responsive VoIP system as set forth in claim 15, wherein

5           said detecting part outputs the severity of congestion for said congestion condition to said call set-up part, based on the ratio of said speech packets to which the "1" has been added as said congestion data to the total, and

          said call set-up part determines on a lower-speed coding method if said severity of congestion is higher.

10           17.     The terminal for the congestion-responsive VoIP system as set forth in claim 13, wherein

          said repeater further comprises a congestion predicting part, and

5           said congestion predicting part determines the ratio of speech packets to which said congestion data will be added according to the transmission condition for said speech packets.

18. The terminal for the congestion-responsive VoIP system as set forth in claim 17, wherein

said repeater further comprises a buffer monitoring part, and

5           said buffer monitoring part notifies said congestion predicting part of the transmission condition, based on the amount of data contained in said speech data.

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